

# Notice of Allowability

Application No.

09/893,207

Examiner

Pamela E Perkins

Applicant(s)

COTTE ET AL.

Art Unit

2822

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 28 October 2004.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ The drawings filed on 27 June 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
AMIR ZARABIAN

SUPERVISORY PATENT EXAMINER

TECHNOLOGY CENTER 2800

### **DETAILED ACTION**

This office action is in response to the filing of the amendment on 28 October 2004. Claims 1-20 are pending.

#### ***Allowable Subject Matter***

Claims 1-20 are allowed.

#### ***Reasons for Allowance***

The following is an examiner's statement of reasons for allowance: prior art does not anticipate, teach, or suggest a process of cleaning a precision surface where a reactive ion etched precision surface having vias, cavities, trenches or channels incorporated therein, the reactive ion etched precision surface containing reactive ion etch residue, is contacted with a composition which consists essentially of liquid or supercritical carbon dioxide and a fluoride-generating species until the reactive ion etch residue is removed from the precision surface, wherein the fluoride-generating species generates fluoride ions.

For example, Mullee et al. (6,500,605) disclose a method of cleaning a precision surface where a substrate is cleaned, after reactive ion etching a surface of the substrate, using a supercritical carbon dioxide surfactant and a co-solvent, a fluoride, at a temperature of 31 to 100°C and a pressure of 1070 psi to 6000 psi to remove reactive ion etched residue from the surface of the substrate. Mullee et al. further disclose the precision surface having vias, cavities, trenches or channels. However, Mullee et al. do

Art Unit: 2822

not disclose, anticipate, teach, or suggest the fluoride-generating species generating fluoride ions.

Agnello (5,897,349) discloses a method of making a semiconductor device where a conductive layer is formed over a substrate; applying a reactive ion etch to pattern the conductive layer and then cleaning the cleaning the reactive ion etch residue. However, Agnello does not disclose, anticipate, teach or suggest contacting the precision surface with a composition which comprises liquid or supercritical carbon dioxide and a fluoride-generating species until the reactive ion etch residue is removed from the precision surface, wherein the fluoride-generating species generates fluoride ions.

The prior art made of record in this action does not anticipate, teach, or suggest a process of cleaning a precision surface where a reactive ion etched precision surface having vias, cavities, trenches or channels incorporated therein, the reactive ion etched precision surface containing reactive ion etch residue, is contacted with a composition which consists essentially of liquid or supercritical carbon dioxide and a fluoride-generating species until the reactive ion etch residue is removed from the precision surface, wherein the fluoride-generating species generates fluoride ions.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pamela E Perkins whose telephone number is (571) 272-1840. The examiner can normally be reached on Monday thru Friday, 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PEP

  
**AMIR ZARABIAN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**